


bouvét

Agenda

- Intro
 - Who are we (Bouvet)
 - What are we going to talk about today – Mixed Reality used with SAP
 - But what is MR? Steffen will give you a short briefing
- MR introduction
- SAP PM perspective
 - PM Order in SAP (open but released)
- Start Demo:
- Q&A

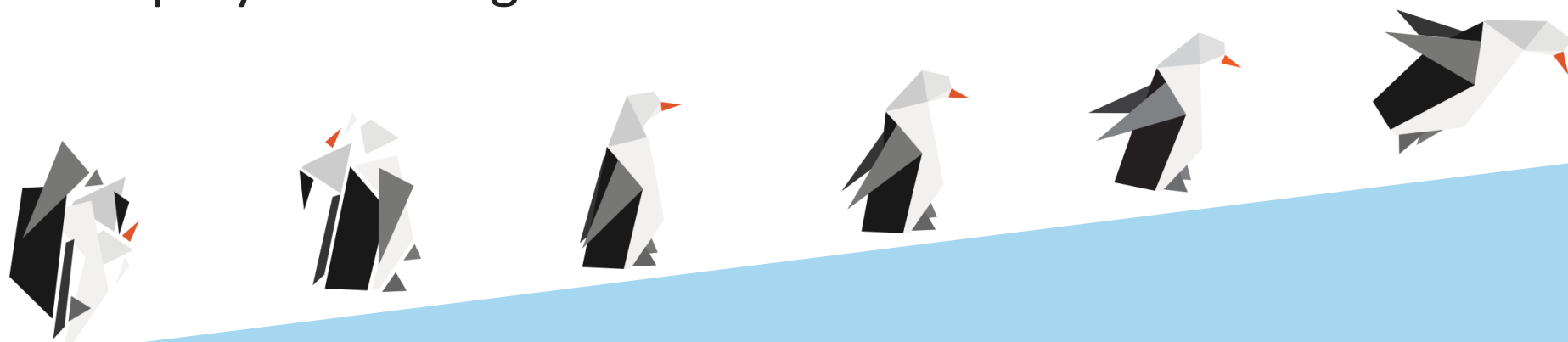
17 year old Norwegian consultancy

14 offices in Scandinavia (>1500 employees)

Leading supplier to energy sector in Stavanger & Bergen

Financially solid and listed on Oslo Børs since 2007

530 employees in Rogaland







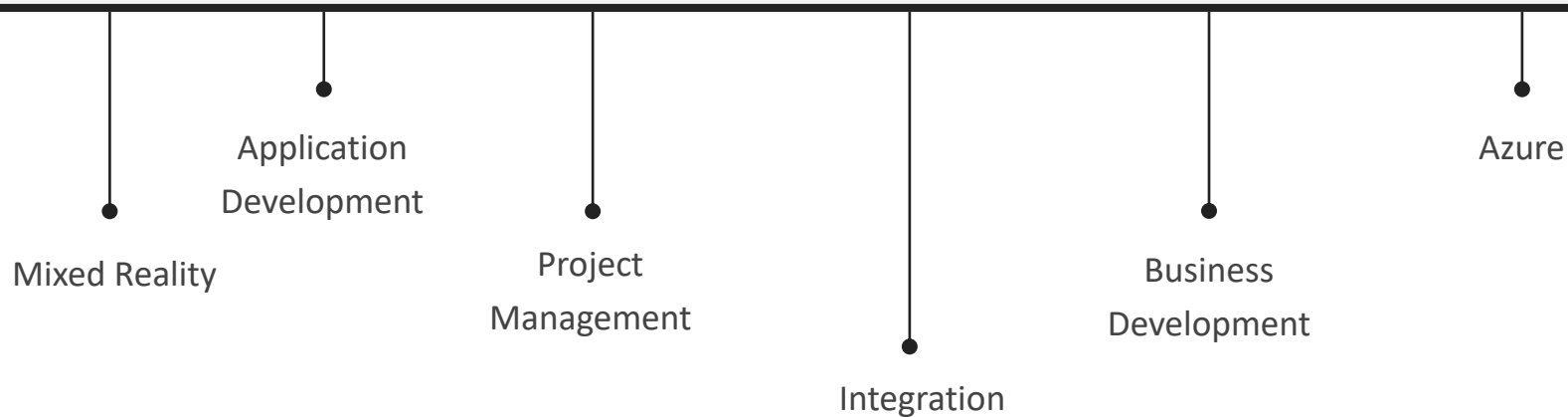
The power of mixed reality as digital support for field workers

bouvet

Business Unit Leader

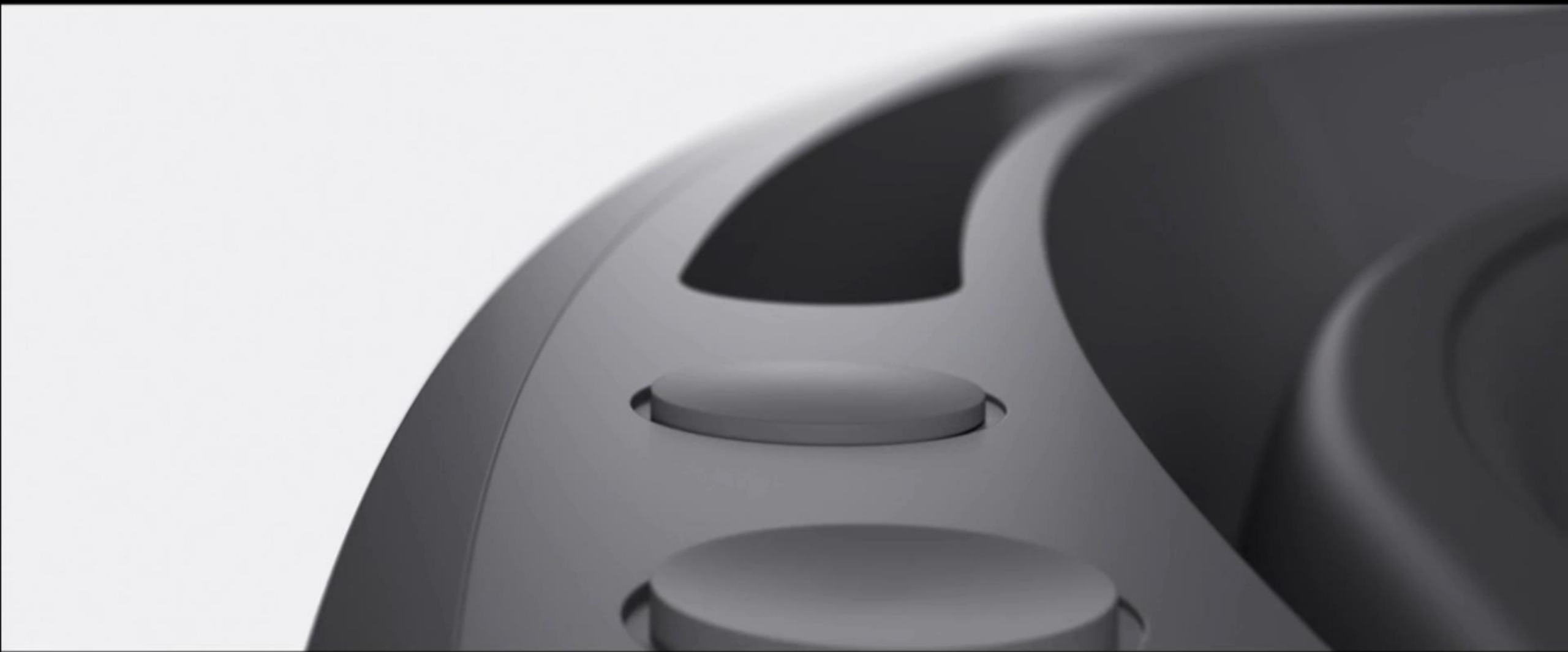
Steffen Myklebust

bouvet



Microsoft
Partner

Mixed
Reality



What is mixed reality?

Mixed reality is the
blending of the physical
and digital worlds



Mixed reality is an umbrella term



Mixed reality

Augmented reality today

Virtual reality today

Mixed Reality – Holographic headsets (see-through)

Mixed Reality – Immersive headsets (occluded)

Companies envision the convergence of physical and digital experiences becoming a defining feature of the modern workplace

FIGURE 1

THE IMPORTANCE OF MIXED REALITY

Enterprises view mixed reality as imperative for business success.

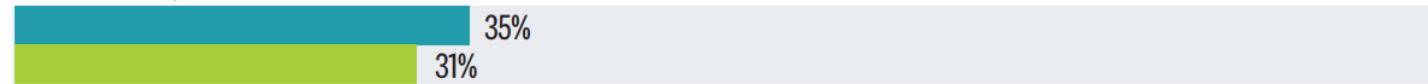
Please rate how important mixed reality technologies are, or will be, in helping your organization achieve its strategic business goals in the next 18 months/three years.

● IN 18 MONTHS ● IN THREE YEARS

Very important



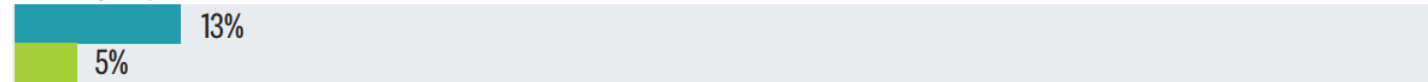
Somewhat important



Neither important nor unimportant



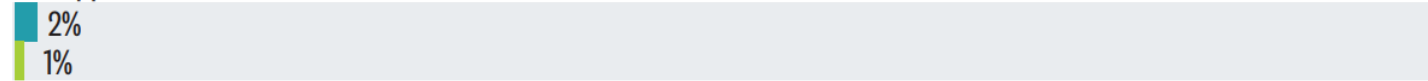
Not very important



Not at all important

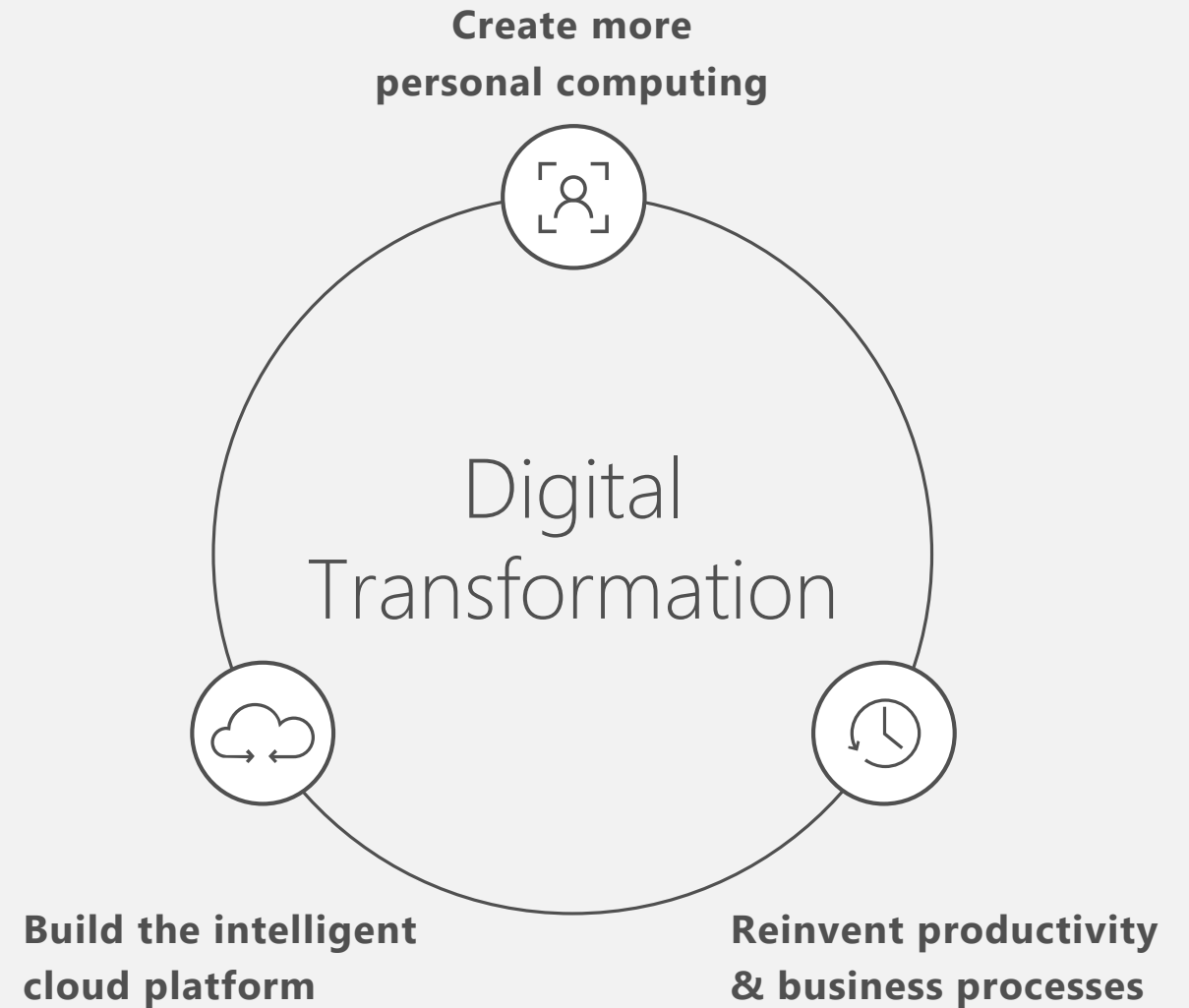


Not applicable



SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2018

Mixed reality is a core component of digital transformation







Introducing HoloLens

HoloLens 2

A new vision for computing





What is HoloLens?

HoloLens is the first self-contained holographic computer, enabling you to interact with high-definition holograms in your world.

A fully untethered experience, HoloLens needs no external wires, markers, or cameras, nor a connection to a phone or PC, so you can move freely.

HoloLens runs Windows 10.

HoloLens 2

A new vision for computing



HoloLens 2

A new vision for computing

Display

- **Optics:** See-through holographic lenses (waveguides)
- **Resolution:** 2k 3:2 light engines
- **Holographic Density:** >2.5k radiants (light points per radian)
- **Eye-based Rendering:** Display optimization for 3D eye position

Sensors & Audio

- **Depth:** Azure Kinect sensor (Depth camera: 1MP Time-of-flight; RGB camera: 12MP CMOS sensor rolling shutter)
- **IMU:** Accelerometer, gyroscope, magnetometer
- **Camera:** 8MP stills, 1080p 30fps video
- **Microphone Array:** 5 channels
- **Speakers:** Built-in, spatial audio

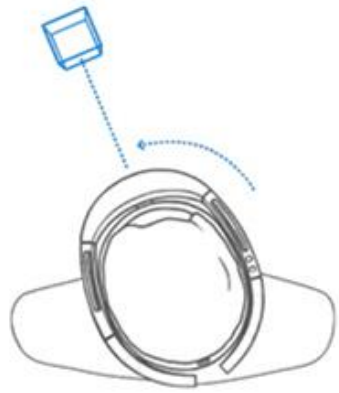
Compute & Connectivity

- **SoC (system on a chip):** Qualcomm Snapdragon 850 Compute Platform
- **HPU:** 2nd Generation Custom-built Holographic Processing Unit
- **Wi-Fi:** 802.11ac 2x2
- **Bluetooth:** 5.0
- **USB:** USB Type-C

Environmental Understanding

- **6DoF Tracking:** World-scale positional tracking
- **Spatial Mapping:** Real-time environment mesh
- **Mixed Reality Capture:** Mixed hologram and physical environment photos and videos

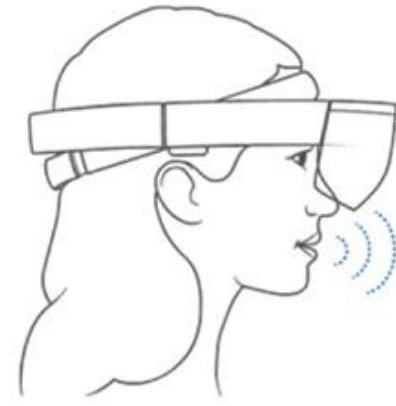
User Interaction HoloLens 1



Gaze



Gesture



Voice

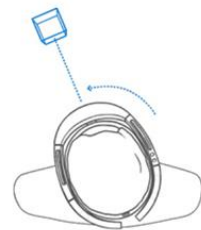
User Interaction HoloLens 2



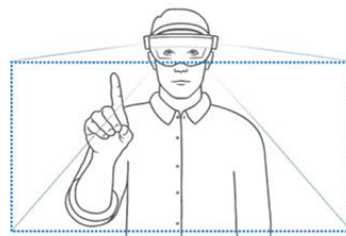
Eye Tracking



Intuitive «touch» interaction



Gaze

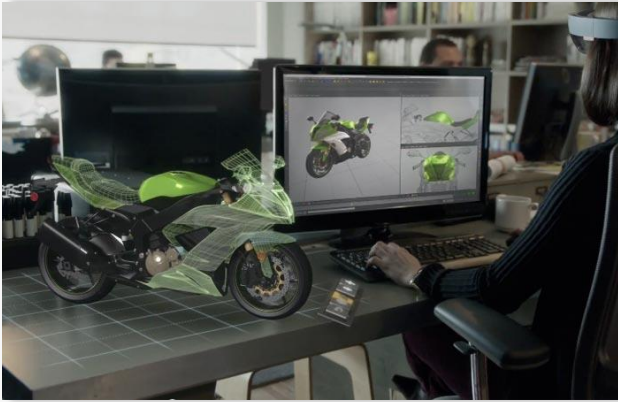


Gesture



Voice

Use Cases



3D Design / Visualisation



Data Visualisation



Education



Manufacturing



Training



Field Worker Support

Guides

Help employees learn
new skills faster with
Dynamics 365 Guides
for HoloLens devices



Remote Assistance

Expert help, instantly

Share your space
and allow the remote
expert to interact
with it





CONNECTED TECHNICIAN

Ambition

- Not a Proof of Concept
- Assist on-site technicians using the HoloLens by providing a hands-free application that provides the relevant data to enable them to safely carry out their tasks
- Improve efficiency through digitalisation of the work process



CONNECTED TECHNICIAN

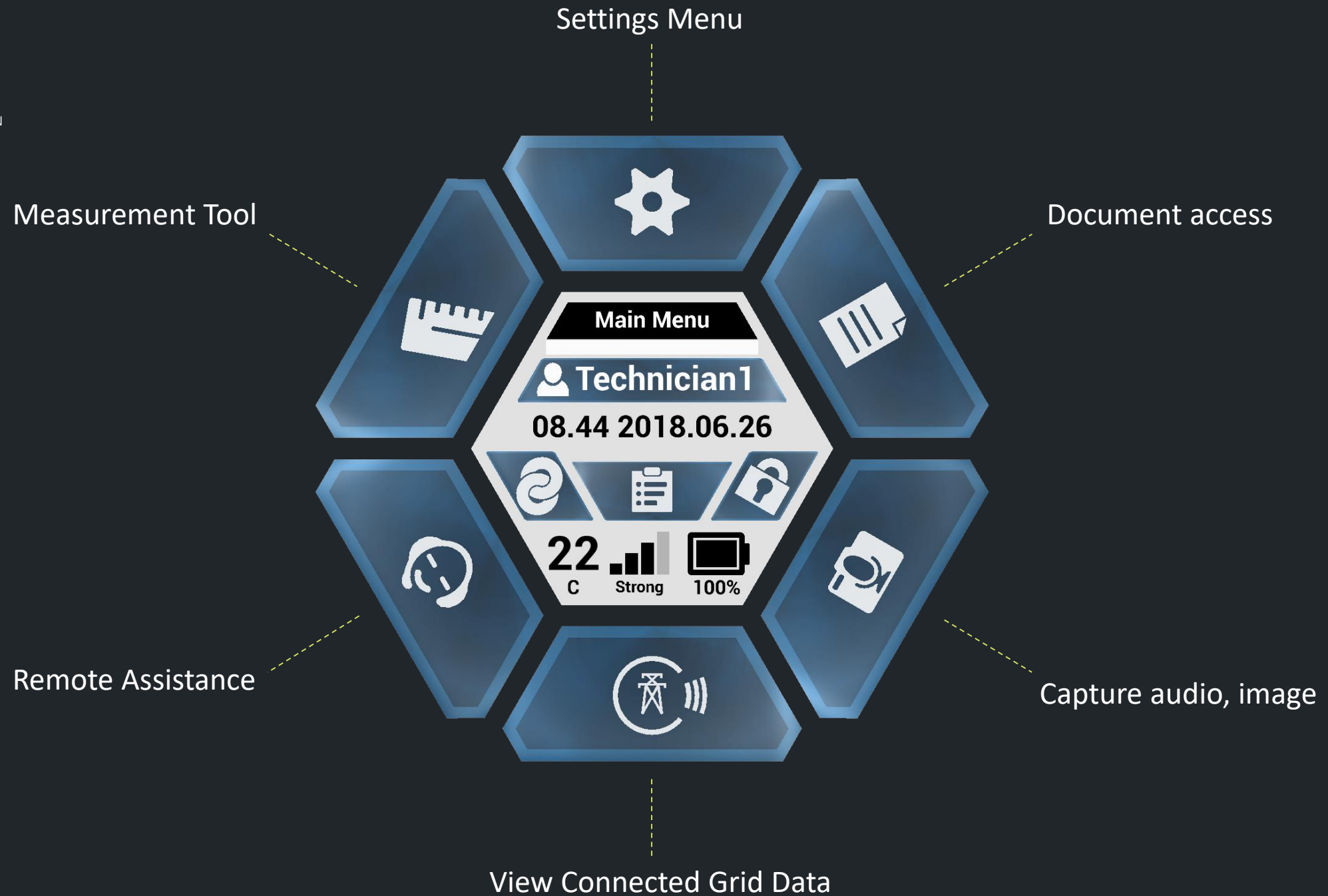
How Connected Technician Adds Value

- The technician should always be able to complete the work order sent to them using just their tools and a HoloLens. No need to re-book an expert if the technician doesn't have the necessary knowledge
- Electronic archive of the job carried out saves time by freeing the technician from archiving work once the job is finished, so allowing them to do more work
- Reduced margin of error – technical documentation and availability of remote experts means a higher accuracy of work



CONNECTED TECHNICIAN

bouvet





Style: Standard 200VAC, 50Hz

Tavle:
Type: V&G
Bredde: 600 mm
Højde: 800 mm
Dybde: 200 mm

Tætningsgrad: IP55

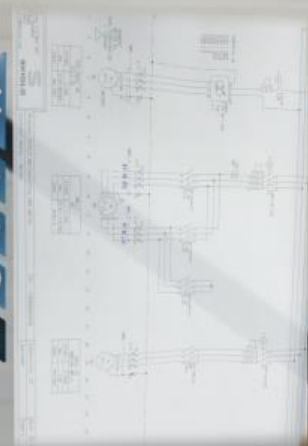
Kabel tilgang:
Forsyning: Bund
Tilslutning: Bund

Max. Hoved sikring: NH 80A(1)

Min. Hoved sikring: NH 35A(1)

I Max Aut. = 21.3A
ICU = 10KA

Ved frekvensforer anbefales fejlsikringskøle F1 300 ms. eller ligende.



Colleague

- Christopher Hove
Online
- Matt Groom
Offline
- Ole Tobiesen
Online

24 FPS

Line length

0.30

Vertical

0.10

Horizontal

0.28

Available IDs

| | | | | |
|------|------|------|------|------|
| 2000 | 2001 | 9999 | 4100 | 1118 |
|------|------|------|------|------|

1 2 3
4 5 6
7 8 9
0 ✓

Technician1
12:52 2018/08/14

23

Data type: Voltage L1

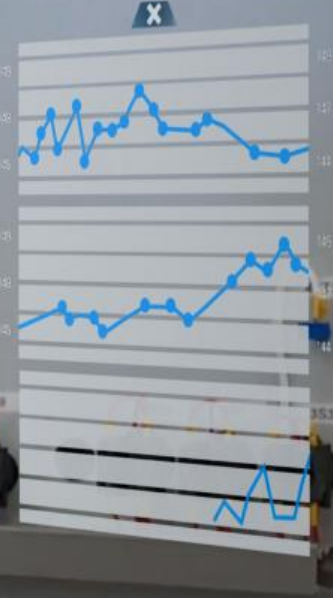
Sub Station ID: 54706

Distance measured (m)

2000

2000

2000

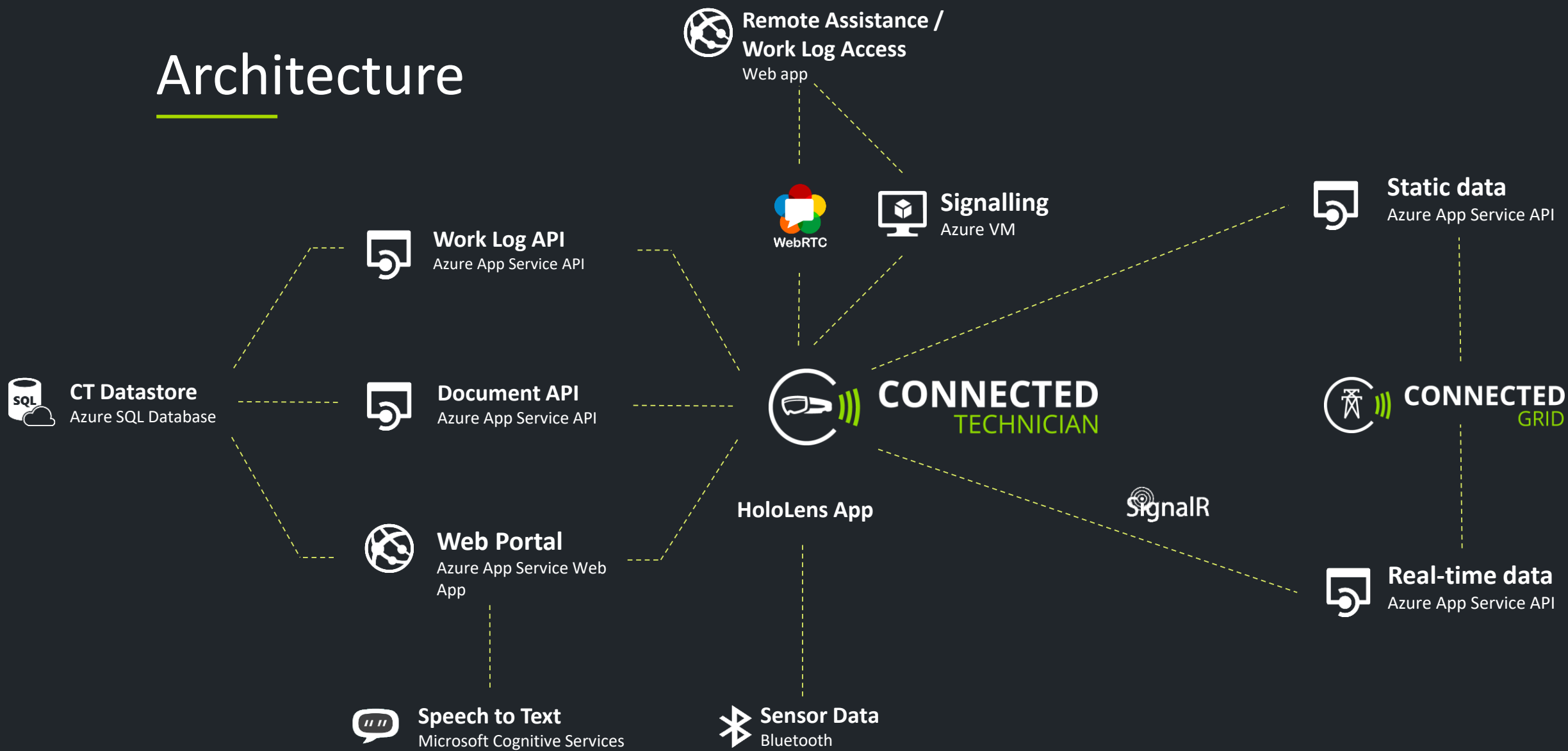


Connected Technician Web Portal

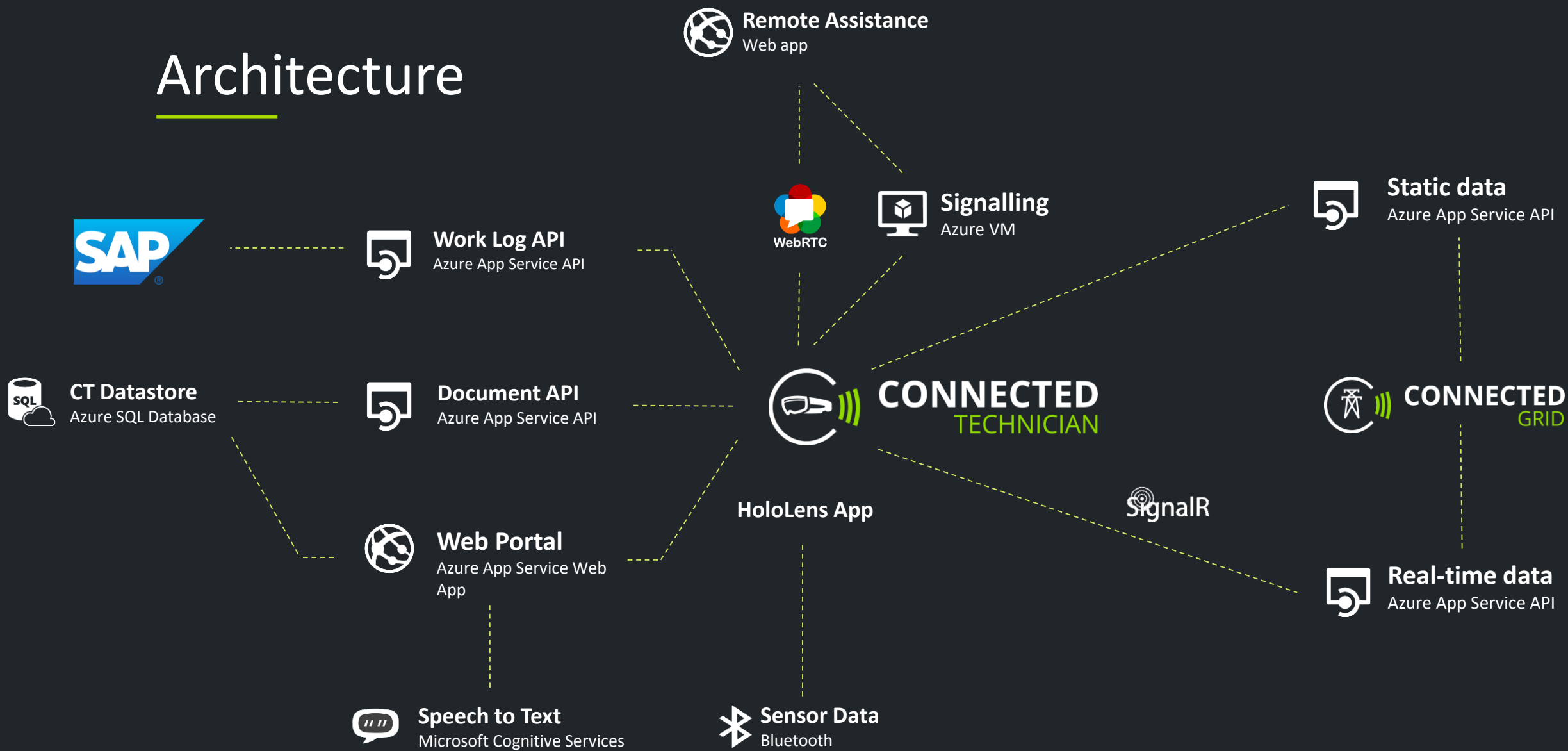
- Digital documentation of the work order fulfilment
- Technical document store
- Live updates of the work process
- Azure App Services Web App – MVSC ASP.net



Architecture



Architecture





CONNECTED TECHNICIAN

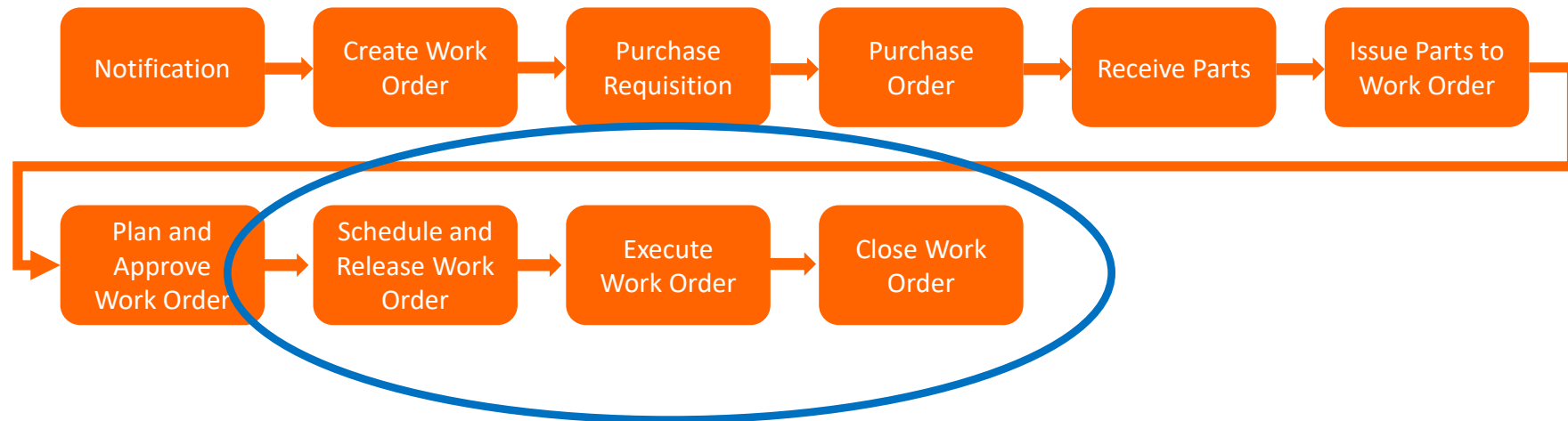
DEMO

Hololens demo

Assumptions:

- Process steps from Notification creation to scheduled and release of Work Order are being processed in SAP Backend.
- A maintenance worker in the field will start her journey from there.
- Some simplifications and shortcuts do apply for this demonstration

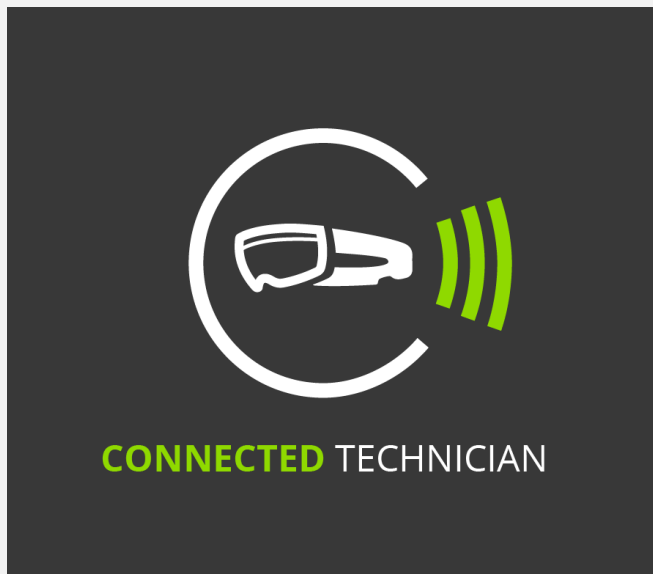
HololensDemo –SAP Perspective





CONNECTED TECHNICIAN

DEMO



bouvet

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Microsoft
Partner

Mixed
Reality